

ABSTRACT OF THE DISCLOSURE

In a method of manufacturing a nonvolatile semiconductor storage device, an element isolation region (12 in Fig. 1) is formed in a semiconductor substrate (11), a tunnel oxide film (13) and a polysilicon layer to become a floating gate (14) later are successively formed on the resulting semiconductor substrate, and nitrogen ions are thereafter implanted into the front surface of the polysilicon layer so as to stay in only this front surface. The polysilicon layer is patterned to form the floating gate (14), and this floating gate (14) is thermally oxidized to form an inter-gate insulating film (15). Since the thermal oxidation is suppressed by the nitrogen ions, the inter-gate insulating film (15) can be made thicker at the side surfaces of the floating gate (14) than at the front surface thereof. Thus, the inter-gate insulating film (15) at the edge part of the floating gate (14) can be formed as designed, so that the nonvolatile semiconductor storage device is free from bad influence on its electrical programming and erasing and is capable of retaining charges for a long time.